example to provide greater locally-varying control at the side edges **797**, **798** of the distribution outlet **730**.

In general, the overall dimensions of the various embodiments for slurry distributors as disclosed herein can be scaled up or down depending on the type of product being manufactured, for example, the thickness and/or width of manufactured product, the speed of the manufacturing line being used, the rate of deposition of the slurry through the distributor, and the like. For example, in the illustrated embodiments, the width **218** of the rectangular slurry outlet (FIG. **5**) for use in a wallboard manufacturing process, which conventionally is provided in nominal widths no greater than 54 inches, can range anywhere between eight to fifty-four inches, and in other embodiments between about eighteen inches and about thirty inches. The height of the outlet opening at its edges and the height of the duct **112**, which is generally denoted as **214** in FIG. **3**, can range anywhere from 3/16 inch to two inches, and in other embodiments between about 3/16 inch and about an inch. The ratio of the rectangular width to the rectangular height of the outlet opening can be from about 4 to about 288, and in other embodiments from about 18 to about 160. The diameter **202** of the slurry inlet can be anywhere between two to four inches, while the combined length of **204** and **210** (FIG. **5**) can be between twelve and twenty four inches or more. The combined transverse length **216** and **226** (FIG. **5**) can be anywhere between twelve and forty eight inches. All these ranges are approximate and can be individually selected and varied for each particular application.

A slurry distributor constructed in accordance with principles of the present disclosure can comprise any suitable material. In some embodiments, a slurry distributor can comprise any suitable substantially rigid material which can include a suitable material which can allow the size and shape of the outlet to be modified using a profile system, for example. For example, a suitably rigid plastic, such as ultra-high molecular weight (UHMW) plastic or metal can be used. In other embodiments, a slurry distributor constructed in accordance with principles of the present disclosure can be made from a flexible material, such as a suitable flexible plastic material, including poly vinyl chloride (PVC) or urethane, for example.

Any suitable technique for making a slurry distributor constructed in accordance with principles of the present disclosure can be used. For example, in embodiments where the slurry distributor is made from a flexible material, such as PVC or urethane, a multi-piece mold can be used. The exterior surface of the multi-piece mold can define the internal flow geometry of the slurry distributor. The multi-piece mold can be made from any suitable material, such as aluminum, for example. The mold can be dipped in a heated solution of flexible material, such as PVC or urethane. The mold can then be removed from the dipped material.

By making the mold out of multiple separate aluminum pieces that have been designed to fit together to provide the desired geometries, the mold pieces can be disengaged from each other and pulled out from the solution while it is still warm. At sufficiently-high temperatures, the flexible material is pliable enough to pull larger mold pieces through smaller areas of the molded slurry distributor without tearing it. In some embodiments, the mold piece areas are about 115%, and in other embodiments about 110%, or less than the area of the molded slurry distributor through which the mold piece is being pulled during removal. Connecting bolts can be placed to interlock and align the mold pieces so flashing at the joints is reduced and so the bolts can be removed to disassemble the multi-piece mold during removal of the mold from the interior of the molded slurry distributor.

A slurry distributor constructed in accordance with principles of the present disclosure can be used in a variety of manufacturing processes. For example, in one embodiment, a method for providing a slurry to an advancing web can be performed using a slurry distributor according to principles of the present disclosure. A flow of aqueous gypsum slurry is passed through an inlet of the slurry distributor which includes a shaped duct having a curved guide surface adapted to redirect the flow of slurry toward an outlet opening thereof. For example, the flow of slurry can be redirected by about 90 degrees so that the flow of slurry is redirected from a direction generally transverse to a line of travel of the web to a direction substantially parallel to the line of travel of the web. In other embodiments, the flow of slurry can be redirected from an inlet flow direction **52** through a change in direction angle θ within a range of about forty-five degrees to about one hundred fifty degrees to the outlet flow direction **54**. The flow of slurry can decelerate while it passes through the shaped duct by configuring the shaped duct to have an increasing cross sectional flow area along at least a portion of a flow path from the inlet to the outlet. In some embodiments, at least one additional flow of slurry can be passed through the shaped duct through a secondary inlet of the shaped duct.

The flow of the aqueous gypsum slurry is discharged through the outlet such that it is deposited upon the web. The outlet flow direction **54** can be generally along the line of travel of the advancing web. The shape of the outlet opening can be adjusted to vary the flow of aqueous gypsum slurry discharging through the outlet in the cross machine direction.

All references cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to,") unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to